

## BERNARDIA AND CLEIDION (EUPHORBIACEAE) IN PANAMA

*Bernardia denticulata* (Standley) Webster, comb. nov.

*Cleidion denticulatum* Standley, Publ. Field Mus. Nat Hist., Bot. Ser. **4**: 218, 1929.

Beginning with Hemsley's description of *Cleidion nicaraguense* in 1873, a total of five species occurring in Panama have been referred to either *Bernardia* or *Cleidion*. Most of these are known only from one or few collections which are incomplete in several instances, so that the true generic affinities have remained obscure up to the present time. In the preceding note, Hemsley's species was disposed of by transferring it to *Acidoton*; it now remains to consider the others.

Croizat (Jour. Arnold Arb. **24**: 166, 1942) noted a strong resemblance to *Bernardia* in the pubescence and columella of *Cleidion denticulatum* Standl.; however, he apparently felt that the seeds were more like *Cleidion*. Actually, the large seeds of the type collection (Cooper 606, Chiriquí Trail, Bocas del Toro) are in size and shape not unlike those of, e.g., *Bernardia obovata* I. M. Johnston (as observed in Johnston 3426, DAV), although seeds of the Panama plant differ in being distinctly mottled.

While the generic position of the plant from Bocas del Toro cannot be fixed with absolute certainty in the absence of male flowers, I believe that the leaves, fruits, and seeds are all compatible with *Bernardia*, and that the dilated columella in particular mitigates against retaining the species in *Cleidion*.

The other species of *Bernardia* from Panama, *B. macrophylla* Standley, differs from *B. denticulata* in its less elongated and more finely toothed leaves. When (as observed in Johnston 3426, DAV), although seeds of the Panama plant differ

ences. Finally, although two of the three Panamanian species described in *Cleidion* have to be removed, *Cleidion woodsonianum* Croizat (Jour. Arnold Arb. **24**: 167, 1943) does appear to be a true *Cleidion*. Croizat himself later (Trop. Woods **88**: 31, 1946) transferred the species to *Adenophaedra*, but this action seems to be unwarranted. Examination of one of the isotypes (*Woodson et al.* 1587, Salamanca, Canal Zone; NY) yielded a single small ♂ inflorescence with a few buds; these prove to have numerous stamens (well over 50) as in *Cleidion*, in contrast to the two or three characteristic of *Adenophaedra*.

In summary, these various taxonomic changes leave the roster of Panama taxa at two species of *Bernardia* and one species of *Cleidion*. Additional material of all three species is needed before their affinities to their congeners can be appraised.—Grady Webster, University of California, Davis.